A Recent Development of the Dubna CASCADE Code

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The standard Dubna Monte Carlo code CASCADE1 for calculation of intra- and internuclear cascades has been revised and improved. Various aspects of level density dependency on excitation energy of decaying post cascade nuclei and influence of shell corrections are studied. An improved library of hadron-nucleus and a more exact phenomenological approximation for nucleus-nucleus cross-sections are introduced. The cross-section library is used to calculate the probability of evaporation channels of excited compound nuclei. The pre-compound nucleus decay has been taken into account. The code is used to simulate irradiation of multi-component heterogeneous systems by high-energy particles, in particular, to study ADS for energy production and transmutation of nuclear waste.

References:-

1. V . S. Barashenkov Comp. Phy. Comm. 2000, v. 126, p. 28.

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